REMARKS UNDER 37 CFR § 1.111

Formal Matters

Claims 2-6 and 20-24 are pending after entry of the amendments set forth herein.

Claims 2-6, 20 and 21 were examined. Claims 2-6, 20 and 21 were rejected.

Applicants respectfully request reconsideration of the application in view of the amendments and remarks made herein.

No new matter has been added.

The Office Action

Claims Rejected Under 35 U.S.C. Section 103(a) (Wang in view of Yoon)

Claims 2-6, 20 and 21 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Wang, U.S. Patent No. 6,106,497 in view of Yoon, U.S. Patent No. 5,441,486.

The Examiner asserted that Wang discloses a tube 18 for transporting blood from the left ventricle 33 to a (blood pump) heart-lung machine 24, a tube 14 including an opening for transporting CO_2 into the left atrium 54, with the tube 14 being connected to a fluid source 10.

The Examiner further asserted that Wang discloses a hemostatic seal 46 sealing the opening of tube 14.

Applicants respectfully traverse. Applicants respectfully submit that nowhere in the Wang is it disclosed that 46 is a hemostatic seal. To the contrary, Wang discloses at column 5, line 30 that reference numeral 46 refers to an in-line check valve, not a hemostatic seal. Still further, the check valve 46 does not seal the opening of tube 14, as the first end 28 of tube 14 has a series of side openings that are not sealed by valve 46, and the second end 30 of tube 14 is connected to the pressure/flow controlling mechanism 12, see column 5, lines 17-27. Thus, the first end 28 is closed off, but has side openings nearby that are not sealed off by check valve 46, and the opening at the second end 30 of tube 14 is connected in fluid communication wit controlling mechanism 12, not sealed off by check valve 46.

The Examiner admitted that Wang does not teach the tube 18 introduced through the seal 46 and opening of delivery tube 14. However, the Examiner asserted that it would have been obvious to modify the system of Wang so that the tube 18 is received through valve 46 for "better flow control", as taught by Yoon.

Applicants respectfully traverse. The Examiner's position is not understood as to how inserting tube 18 through valve 46 would result in "better flow control". Yoon discloses an endoscopic portal provided for inserting an instrument therethrough while preventing undesired fluid flow through the endoscopic portal. The tube 18 and conveying tube 14 are combined into a single, double lumen tube 38, see column 5, lines 6-8 and Fig. 1. Therefore, there would have been no advantage in flow control by inserting tube 18 through check valve 14, since the check valve 46, if anything, would restrict flow through tube 18. Since Wang wants to remove blood through tube 18 when the heart lung machine 24 is actuated, the modification suggested by the Examiner would make for worse flow control if anything, since it would be more difficult to remove blood through the tube 18 when restricted by the check valve 46. Also, this would additionally likely make the check valve 46 more leaky between the leaflets of the valve 46 and the outside of tube 18, and therefore valve 46 would be less useful for its purpose of controlling flow through tube 14 since it would be more leaky.

Still further, Wang discloses at column 5, lines 9-11, that tube 14 has a smaller inside diameter than tube 18. Therefore, it would be impossible to pass tube through valve 46 (and, inherently, through tube 14) as suggested by the Examiner without altering the diameters of the tubes so that 14 has a larger diameter than 18. This would also effect the flow characteristics of the system, and there is no teaching provided or reason to suggest that the flow characteristics would be improved by such a drastic modification.

Accordingly, in view of the above amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 2-6, 20 and 21 under 35 U.S.C. Section 103(a) as being unpatentable over Wang, U.S. Patent No. 6,106,497 in view of Yoon, U.S. Patent No. 5,441,486, as being inappropriate.

New Claims

New claims 22-23 have been submitted above to depend from claim 2. Support for claim 22 can be found, for example, in the specification at page 11, lines 14-18, and throughout the specification and drawings. Support for claim 23 can be found, for example, in Fig. 6, the description thereof, and throughout the specification and drawings. New independent claim 24 has been submitted above.

Support for claim 24 can be found, for example, in claims 2 and 23. The Examiner is respectfully requested to indicate the allowance of claims 22-24 in the next Official Action.

Conclusion

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-2653, order number 9261.16661-PCT-US-DIV.

Respectfully submitted,
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